## REMARKS

Claims 1-53 are pending in the present application. Applicant has amended claims 1, 5, 7, 23, 27, 29, 52 and 53. Support for the present claim amendments can be found in paragraphs [0024] and [0025] and in the original claims, among other places.

Claims 1-53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 5,773,146 to Lawton et al. (hereinafter "Lawton '146") in view of United States Patent Application Publication No. 20020051882 to Lawton et al. (hereinafter "Lawton '882").

Applicant respectfully requests consideration of the application in view of the following remarks.

## Information Disclosure Statement

Applicant has submitted herewith a Supplemental Information Disclosure Statement. Applicant respectfully requests consideration of the listed documents and making the same of record in the prosecution of this application.

## Claims 1-53 - 35 U.S.C. § 103(a)

The rejection of claims 1-53 under 35 U.S.C. § 103(a) as being unpatentable over Lawton '146 in view of Lawton '882 is respectfully traversed.

### A. Claims 1-51

Applicant has amended independent claims 1 and 23 to recite that the starch mixture comprises "a high viscosity starch and a low viscosity starch, wherein the high viscosity starch comprises a starch having an amylose content of > 50%, wherein the low viscosity starch comprises a chemically modified starch comprising > 50% amylose, and wherein at least 50% of the high viscosity starch and at least 50% of the low viscosity starch are solubilized." Applicant respectfully submits that the combination of Lawton '146 and Lawton '882 does not teach or suggest this starch mixture.

Applicant again notes that neither Lawton '146 nor Lawton '882 teach or suggest the combination of starches recited in claims 1 and 23. In particular, neither reference recites a combination of high amylose starches. Applicant has further clarified his

invention by amending the claims to specify that one of the high amylose starches is chemically modified. Applicant respectfully submits that a person of ordinary skill in the art would not be motivated to combine the two starches as presently claimed.

The claims recite that the starches are each at least 50% solubilized. Applicant submits that chemically modified starches generally solubilize at significantly higher temperatures than starches that are not chemically modified.[1] Accordingly, chemically modified starches are typically provided in starch mixtures as part of sizing compositions in order for the starch granules to provide texture and structure to fiber glass yarns since the granules are not burst during the conventional cooking process. If a chemically modified starch were to be solubilized during cooking, one of the primary reasons for its inclusion would be eliminated (i.e., the ability of its granules to withstand conventional cooking processes and provide texture and structure when applied to fiber glass yarns as part of a sizing composition). Applicant respectfully submits that a person of ordinary skill in the art looking to utilize a high amylose starch as part of sizing composition would not be motivated to combine two high amylose starches where one of the starches (i.e., a chemically modified starch) cooks at a significantly higher temperature than the other starch.

The Office Action also continues to not consider the solubilization of the starches in evaluating patentability of the claims. Applicant has amended the claims to remove the reference to cooking in order to emphasize that solubilization is not part of a process limitation, but rather defines structure associated with the starches. This is first evidenced in Applicant's specification, which states: "When starch granules are cooked in water, two main events occur: the starch granules swell and materials inside the granule, such as amylose, leach out. By cooking the starch mixture at a cooking temperature sufficient to solubilize at least 50% of the high viscosity starch and to solubilize at least 50% of the low viscosity starch, a majority of the starch granules in the starch mixture swell and rupture. Because a majority of the starch granules rupture, upon cooling the cooked starch mixture does not significantly increase in viscosity . . . ."[2] In

[1] The specification states that the term "solubilize" "refers to dissolving matter (a solute) in a solvent." Specification, [0021].
[2] Specification, [0027].

addition, other patents discuss the solubilization of starches upon cooking. For example, U.S. Patent No. 4,166,872 discusses sizing compositions that incorporate "swollen but unburst partially cooked starch granules"[3] and the properties of starches upon cooking.[4] The claims in the '872 patent even reference cooking and "swollen unburst starch granules." Accordingly, Applicant respectfully submits that the claimed solubilization of the starches should be given patentable weight. Further, Applicant respectfully submits that the combination of Lawton '146 and Lawton '882 does not teach or suggest a starch mixture comprising starches having the claimed properties.

In view of the foregoing, Applicant respectfully asserts that claims 1 and 23 are patentable over Lawton '146 in view of Lawton '882. As claims 2-22 depend from claim 1 or an intervening dependent claim, and as claims 24-51 depend from claim 23 or an intervening dependent claim, Applicant respectfully asserts that these claims are also patentable over Lawton '146 in view of Lawton '882.

B. Claims 52-53

Applicant has amended claims 52 and 53 to recite that the sizing compositions each comprise a starch mixture comprising "a high viscosity starch comprising an unmodified starch having an amylose content of > 50% and a low viscosity starch comprising a chemically modified starch comprising > 50% amylose, wherein the high viscosity starch comprises a starch having an amylose content of > 50%, wherein the low viscosity starch comprises a starch comprising > 50% amylose, and wherein the sizing composition has a viscosity of less than or equal to 20 centipoise."[5] Applicant respectfully submits that the combination of Lawton '146 and Lawton '882 does not teach or suggest this starch mixture for the reasons set forth above in connection with claims 1 and 23.

In claims 52 and 53, the sizing compositions are characterized as having a viscosity of less than or equal to 20 centipoise. This viscosity limitation is reflective of the solubilization of the claimed starches. In other words, the starches recited in these

[3] U.S. Patent No. 4,166,872, col. 2, ll. 58-59.
[4] *See, e.g., id.*, col. 4, ll. 9-18 and col. 7, ll. 23-58.
[5] The amendment of "amylase" to "amylose" is to correct a typographical error in these claims.

particular claims have been cooked in a manner that allows them to be incorporated into a sizing composition with the resulting sizing composition having a viscosity of less than 20 centipoise. Applicant respectfully submits that the combination of Lawton '146 and Lawton '882 does not teach a starch mixture comprising starches having the claimed features and that can be incorporated into a sizing composition such that the sizing composition has a viscosity of less than 20 centipoise. For at least this additional reason, Applicant respectfully submits that claims 52 and 53 are patentable.

## CONCLUSION

For the foregoing reasons, a favorable Office Action is respectfully solicited. The Examiner is respectfully invited to contact J. Jason Link at 336.607.7443 to discuss any matter relating to this application.

Respectfully submitted,

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